

TITLE: MODEM WITH ENHANCED ECHO CANCELER

ABSTRACT OF THE DISCLOSURE

A modem incorporating apparatus and methods to achieve computationally efficient
5 echo cancellation. The apparatus include a cyclic echo synthesizer sub-canceller in the time
domain and a echo canceler in the frequency domain. The method includes generating a
cyclic echo synthesizer signal using a sub-canceller structure, adding the cyclic echo
synthesizer signal to a receive signal in the time domain, generating an echo cancellation
10 signal, and subtracting the echo cancellation signal from the receive signal in the frequency
domain. The apparatus and methods may be used for echo cancellation in an asynchronous
digital subscriber line (ADSL) modem using discrete multi-tone (DMT) technology.